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ABSTRACT

This paper discusses the extent to which new technologies have penetrated Greek schools and how well equipped Greek teachers are to deal with them. Educational television and other uses of video have not become a regular part of school life. Most computers are limited to laboratory use in private schools and secondary-education use in public schools. Even so, Greek teachers are required to attend three months of technical training at Peripheral Educational Centers (PECs) around Greece. Ten hours of theory cover basic elements of computer science, examples of educational videocassettes, initiation to educational television, and examples of multimedia presentation. Meanwhile, 20 hours of lab work examine the basics of MS/DOS, word processing, and Logo. A survey of those in technical training collected some preliminary data on teacher computer ownership, on teacher attitudes toward new technologies and their hypothetical future integration into the classroom setting. (BEW)

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TECHNOLOGICAL LITERACY OR ILLITERACY? THE REALITY ABOUT GREEK TEACHERS

by
Michael Meimaris

ED 393 417

Assumptions Taken Under Consideration

Active primary school teachers are graduates of the two-year term Pedagogical Academies, which were abolished in 1986 along with the founding of four-year term Educational Departments inside the universities.

These educators have the obligation to teach the whole school curriculum; there are no specialties.

Therefore, their training on basic Sciences (Mathematics and Physical Sciences) is insufficient, being oriented mainly towards the subject matter taught in primary schools. In Greek primary schools there exists a detailed curriculum describing analytically each book chapter per teaching hour according to every subject and relating exclusively to the teaching manual-book, which is unique and obligatory for all schools.

The Greek teacher's everyday practice consists of *teaching by the book*, instead of teaching the student's relation to knowledge, using the book as an accessory.

With the appearance of new audiovisual techniques in education, the efficacy of the previous method is seriously questioned.

As a learning process we accept the theory of constructivism, based on the concepts already available to people, the construction of knowledge being the result of the active subject (Fort, 1992).

As a teaching principle we accept the following thesis: "The teaching of a certain subject presupposes the knowledge of the subject's entire domain, its evolution, and applications" (Strantzalos, 1991).

Any form of introduction of the new technologies to schools will therefore have to take into consideration:

1. The perceptions and practices of the teachers themselves about the teaching and the learning process.

2. The teachers' own knowledge about the new technologies.

3. The possibilities of a wider use of new technologies (Meimaris, 1992).

The Present Situation Concerning the Relation Between the New Technologies and Education in Greece

Educational television has been in use since 1978 without becoming functional in the process of school life.

The practice of sending video cassettes and television sets to schools in remote areas, which was done in a limited way the last few years, has not produced specific results on a regional level, nor has it had any effect on an all-round level.

For the time being, the 5,000 to 6,000 PC's that are programmed to reach mainly secondary schools and to a smaller degree primary schools, are in the process of being bought for the hardware, while as far as software is concerned, there exist only general outlines.

It has not been verified if the above mentioned PC's will be used for new technology literacy programs or as a tool of initiation to informatics, or as a new technology method of approach for the

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teaching of a large number of lessons (or for office work!).

There exists a promotional yearbook on informatics, which can adhere to graduates of Computer Science, Mathematics, and Physics. It is obvious that these graduates will teach their students based on their fields.

In a number of private schools computers are functioning on a laboratory basis, but they have not been in use as a class accessory.

Special Training in the New Technologies for the Teachers

The mass training of teachers is the work of the P.E.C. (Peripheral Educational Centers) established in 1985 and functioning since September 1992. Attendance is obligatory for all active educators of all levels and specialties.

There are 14 P.E.C.'s in Greece, three of them in Athens and Piraeus, while the capacity of each is approximately 400 trainees for a three month period.

P.E.C.'s offer for the first three months of each academic year a pre-service training period, followed by two in-service periods for the remaining six months.

Thus, it can be assumed that in the next eight to ten years all Greek active educators will have completed a three month training period on the P.E.C.'s.

The function of P.E.C.'s provides lessons five hours daily, five days a week, for a three month period of audio-visual as well as new technology lessons and computer laboratory cover respectively one and two hours weekly: i.e., we have 10 hours of theory and 20 hours of practice (hands-on) for teachers per training term.

Outside the P.E.C. structure there are held, occasionally, special training seminars on computing languages, logo, word processing, spread sheets, etc., usually as an initiative of private and social sources--communities for example. The teacher's participation in these multi-hour and not clearly education oriented seminars is limited.

Teacher trainees have not received lessons connected with the new technologies and computer science during their basic education in the Pedagogical Academies.

Basic Elements of Training in New Technologies During the Three Month Term of P.E.C.

During the ten hours of theory the following subjects are examined:

1. Basic elements of computer science and N.T.'s (Binary system, computer configuration, networks, hypermedia).

2. Examples of educational video cassettes (Greek and foreign productions).

3. Initiation to educational television (from the conception and design of a scenario to the production and distribution).

4. Examples of multimedia educational products (CD-i with disks from Smithsonian Institute, Time-Life, Van Gogh, and applications for children).

During the 20 hours of lab work, with two persons per machine (PC's 286 network with a 386 Host computer), the following subjects are examined:

1. Familiarization with the machines.

2. Basic principles of MS/DOS.

3. Word processing.

4. Examples of Logo an different school data processing applications.

The Questionnaire's Design and Procedure

The questionnaire is designed in such a way that will permit the investigation of:

1. Teachers' literacy in the N.T.'s and their ability to use them.

2. Teachers' pre-existing opinions-attitudes concerning the introduction of N.T.'s in education, especially in relation to their own training and school curriculum.

3. Their relation to educational television.

4. Their potential to organize a lesson using different elements based on the N.T.'s.

The questionnaire was submitted during the function of the P.E.C. in Piraeus, in two training terms, the first concerning pre-service training and the second concerning in-service.

About eight hundred (800) educators of all levels and specialties from the greater Piraeus area and the Cycladic and Dodecanese Islands were questioned.

Methodology

For the analysis of the complete set of data, linear (factor analysis) and non linear (cluster analysis) statistical methods have been used. More specifically: Correspondence Analysis (Benzecri, 1973) and Ascending Hierarchical Classification have been employed for the exploration of the latent structure of different data matrices constructed from the initial table of data (Meimaris, 1978).

First Results

Complete data processing being under way as these lines are written, we are obliged to present here elements concerning the pre-service training of primary school teachers.

In this phase the questionnaire was addressed to 120 pre-service teachers of primary schools:

- 73% female and 27% male,
- 65% 26-27 years old,
- Half of the above were graduates of regional pedagogical academies,
- 80% had graduated in 1986,
- all had experience of school teaching as substitutes,
- 31% had given private lessons,
- 73% had a teaching experience of more than three years,
- 9% (11 persons) owned a PC; six of them used the PC regularly and only one had the proper training,
- Out of the total number of 120 teachers, only four had been trained in computers of whom two neither own nor use a PC; only four use a PC at school and of those only one had the proper training.

In reference to the question about the teachers literacy in the N.T.'s, we note among others the following results:

Items	in relation to computers	no relation	don't know
mouse	26%	21%	42%
diskette	82%	7%	7%
software	46%	2%	37%
fax	36%	34%	18%
logo	16%	18%	49%
0-1	14%	2%	65.5%

Concerning the question about whether they have attended educational television programs, they answered:

62% yes, 27% no, and 10% gave no answer, while they had an overall positive view concerning its educational value and its assistance towards the lesson's better comprehension.

Concerning the hypothetical existence of all the new technology items in the classroom, they prefer television and video as an accessory to teaching, and to a lesser degree the computer, especially in matters of the environment. As a mode d'emploi they propose a projection followed by discussion and commentary.

Looking to the introduction of the N.T.'s to education:

In Relation to the Educator's Training

1. 17% propose only for mathematics teachers to be trained in programming languages and use.

2. 47% propose short term training for teachers of all specialties oriented toward programming languages.

In Relation to School Curriculum:

1. 39% propose the introduction of a special lesson on informatics,

2. 45% propose the creation of a computer lab,

3. 26% prefer the introduction of N.T.'s to school through the different already existing lessons without creating a new one.

Discussion

It appears that the ownership, the use, and the training in a personal computer are in themselves quite different things.

This in itself is unavoidable but as far as educators are concerned it breeds certain dangers about the implementation of the N.T.'s in education.

In an educational policy it would seem quite an easy thing to obtain a personal computer for work at school or for the teachers training (at home, with the help of a grant as is the case for buying books). The difficult thing is the proper training in the new technologies and their multiple uses.

This training will have to cover the cost of both the initial phase of training and the hands-on phase as well as the observance of real-life teaching situations with the use of PC's, and to foresee future uses.

Therefore, more time is needed before educators can arrive at a level that will permit them to organize experimental educational scenarios.

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